



SEQUENCE LISTING

<110> Luche, Ralf M.
Wei, Bo

<120> DSP-15 DUAL-SPECIFICITY PHOSPHATASE

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<140> US 09/955,732

<141> 2001-09-18

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<210> 1

<211> 1980

<212> DNA

<213> Homo sapiens

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cagtcagtgg	ttaccctcca	gggcagtgcc	gtggtggcca	accggaccca	ggccttccag	1860
gagcaggagc	aggggcaggg	gcaggggcag	ggagagccct	gcatttcctc	tacgcccagg	1920
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<210> 2
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 <212> PRT
 <213> Homo sapiens

<400> 2

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			20					25					30		
Gln	Arg	Arg	Gln	Ser	Phe	Ala	Val	Leu	Arg	Gly	Ala	Val	Leu	Gly	Leu
		35				40						45			
Gln	Asp	Gly	Gly	Asp	Asn	Asp	Asp	Ala	Ala	Glu	Ala	Ser	Ser	Glu	Pro
	50				55					60					
Thr	Glu	Lys	Ala	Pro	Ser	Glu	Glu	Glu	Leu	His	Gly	Asp	Gln	Thr	Asp
65					70					75				80	
Phe	Gly	Gln	Gly	Ser	Gln	Ser	Pro	Gln	Lys	Gln	Glu	Glu	Gln	Arg	Gln
				85					90					95	
His	Leu	His	Leu	Met	Val	Gln	Leu	Leu	Arg	Pro	Gln	Asp	Asp	Ile	Arg
			100					105					110		
Leu	Ala	Ala	Gln	Leu	Glu	Ala	Pro	Arg	Pro	Pro	Arg	Leu	Arg	Tyr	Leu
		115					120					125			
Leu	Val	Val	Ser	Thr	Arg	Glu	Gly	Glu	Gly	Leu	Ser	Gln	Asp	Glu	Thr
	130					135					140				
Val	Leu	Leu	Gly	Val	Asp	Phe	Pro	Asp	Ser	Ser	Ser	Pro	Ser	Cys	Thr
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Leu	Gly	Leu	Val	Leu	Pro	Leu	Trp	Ser	Asp	Thr	Gln	Val	Tyr	Leu	Asp
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Gly	Asp	Gly	Gly	Phe	Ser	Val	Thr	Ser	Gly	Gly	Gln	Ser	Arg	Ile	Phe
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Lys	Pro	Ile	Ser	Ile	Gln	Thr	Met	Trp	Ala	Thr	Leu	Gln	Val	Leu	His
	195						200					205			
Gln	Ala	Cys	Glu	Ala	Ala	Leu	Gly	Ser	Gly	Leu	Val	Pro	Gly	Gly	Ser
	210					215					220				
Ala	Leu	Thr	Trp	Ala	Ser	His	Tyr	Gln	Glu	Arg	Leu	Asn	Ser	Glu	Gln
225					230					235					240
Ser	Cys	Leu	Asn	Glu	Trp	Thr	Ala	Met	Ala	Asp	Leu	Glu	Ser	Leu	Arg
			245						250					255	
Pro	Pro	Ser	Ala	Glu	Pro	Gly	Gly	Ser	Ser	Glu	Gln	Glu	Gln	Met	Glu
			260					265						270	
Gln	Ala	Ile	Arg	Ala	Glu	Leu	Trp	Lys	Val	Leu	Asp	Val	Ser	Asp	Leu
	275						280					285			
Glu	Ser	Val	Thr	Ser	Lys	Glu	Ile	Arg	Gln	Ala	Leu	Glu	Leu	Arg	Leu
	290					295					300				
Gly	Leu	Pro	Leu	Gln	Gln	Tyr	Arg	Asp	Phe	Ile	Asp	Asn	Gln	Met	Leu
305					310					315					320
Leu	Leu	Val	Ala	Gln	Arg	Asp	Arg	Ala	Ser	Arg	Ile	Phe	Pro	His	Leu
			325						330					335	
Tyr	Leu	Gly	Ser	Glu	Trp	Asn	Ala	Ala	Asn	Leu	Glu	Glu	Leu	Gln	Arg
		340					345						350		
Asn	Arg	Val	Thr	His	Ile	Leu	Asn	Met	Ala	Arg	Glu	Ile	Asp	Asn	Phe
	355					360						365			
Tyr	Pro	Glu	Arg	Phe	Thr	Tyr	His	Asn	Val	Arg	Leu	Trp	Asp	Glu	Glu
	370					375					380				
Ser	Ala	Gln	Leu	Leu	Pro	His	Trp	Lys	Glu	Thr	His	Arg	Phe	Ile	Glu

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385          390          395          400
Ala Ala Arg Ala Gln Gly Thr His Val Leu Val His Cys Lys Met Gly
          405          410          415
Val Ser Arg Ser Ala Ala Thr Val Leu Ala Tyr Ala Met Lys Gln Tyr
          420          425          430
Glu Cys Ser Leu Glu Gln Ala Leu Arg His Val Gln Glu Leu Arg Pro
          435          440          445
Ile Ala Arg Pro Asn Pro Gly Phe Leu Arg Gln Leu Gln Ile Tyr Gln
          450          455          460
Gly Ile Leu Thr Ala Ser Arg Gln Ser His Val Trp Glu Gln Lys Val
465          470          475          480
Gly Gly Val Ser Pro Glu Glu His Pro Ala Pro Glu Val Ser Thr Pro
          485          490          495
Phe Pro Pro Leu Pro Pro Glu Pro Glu Gly Gly Gly Glu Glu Lys Val
          500          505          510
Val Gly Met Glu Glu Ser Gln Ala Ala Pro Lys Glu Glu Pro Gly Pro
          515          520          525
Arg Pro Arg Ile Asn Leu Arg Gly Val Met Arg Ser Ile Ser Leu Leu
530          535          540
Glu Pro Ser Leu Glu Leu Glu Ser Thr Ser Glu Thr Ser Asp Met Pro
545          550          555          560
Glu Val Phe Ser Ser His Glu Ser Ser His Glu Glu Pro Leu Gln Pro
          565          570          575
Phe Pro Gln Leu Ala Arg Thr Lys Gly Gly Gln Gln Val Asp Arg Gly
          580          585          590
Pro Gln Pro Ala Leu Lys Ser Arg Gln Ser Val Val Thr Leu Gln Gly
          595          600          605
Ser Ala Val Val Ala Asn Arg Thr Gln Ala Phe Gln Glu Gln Glu Gln
610          615          620
Gly Gln Gly Gln Gly Gln Gly Glu Pro Cys Ile Ser Ser Thr Pro Arg
625          630          635          640
Phe Arg Lys Val Val Arg Gln Ala Ser Val His Asp Ser Gly Glu Glu
          645          650          655
Gly Glu Ala

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<210> 3
<211> 156
<212> PRT
<213> Homo sapiens

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<400> 3
Asp Gly Ser Pro Leu Ser Asn Ser Gln Pro Ser Phe Pro Val Glu Ile
1          5          10          15
Leu Pro Phe Leu Tyr Leu Gly Cys Ala Lys Asp Ser Thr Asn Leu Asp
          20          25          30
Val Leu Glu Glu Phe Gly Ile Lys Tyr Ile Leu Asn Val Thr Pro Asn
          35          40          45
Leu Pro Asn Leu Phe Glu Asn Ala Gly Glu Phe Lys Tyr Lys Gln Ile
          50          55          60
Pro Ile Ser Asp His Trp Ser Gln Asn Leu Ser Gln Phe Phe Pro Glu
65          70          75          80
Ala Ile Ser Phe Ile Asp Glu Ala Arg Gly Lys Asn Cys Gly Val Leu
          85          90          95
Val His Cys Leu Ala Gly Ile Ser Arg Ser Val Thr Val Thr Val Ala
          100          105          110

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Tyr Leu Met Gln Lys Leu Asn Leu Ser Met Asn Asp Ala Tyr Asp Ile
      115      120      125
Val Lys Met Lys Lys Ser Asn Ile Ser Pro Asn Phe Asn Phe Met Gly
      130      135      140
Gln Leu Leu Asp Phe Glu Arg Thr Leu Gly Leu Ser
145      150      155

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<210> 4
<211> 156
<212> PRT
<213> Homo sapiens

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<400> 4
Asp Gly Ser Pro Val Pro Ser Ser Gln Pro Ala Phe Pro Val Gln Ile
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Leu Pro Tyr Leu Tyr Leu Gly Cys Ala Lys Asp Ser Thr Asn Leu Asp
      20      25      30
Val Leu Gly Lys Tyr Gly Ile Lys Tyr Ile Leu Asn Val Thr Pro Asn
      35      40      45
Leu Pro Asn Ala Phe Glu His Gly Gly Glu Phe Thr Tyr Lys Gln Ile
      50      55      60
Pro Ile Ser Asp His Trp Ser Gln Asn Leu Ser Gln Phe Phe Pro Glu
65      70      75      80
Ala Ile Ser Phe Ile Asp Glu Ala Arg Ser Lys Lys Cys Gly Val Leu
      85      90      95
Val His Cys Leu Ala Gly Ile Ser Arg Ser Val Thr Val Thr Val Ala
      100      105      110
Tyr Leu Met Gln Lys Met Asn Leu Ser Leu Asn Asp Ala Tyr Asp Phe
      115      120      125
Val Lys Arg Lys Lys Ser Asn Ile Ser Pro Asn Phe Asn Phe Met Gly
      130      135      140
Gln Leu Leu Asp Phe Glu Arg Thr Leu Gly Leu Ser
145      150      155

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<210> 5
<211> 156
<212> PRT
<213> Homo sapiens

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<400> 5
Ala Thr Pro Pro Pro Val Gly Leu Arg Ala Ser Phe Pro Val Gln Ile
 1      5      10      15
Leu Pro Asn Leu Tyr Leu Gly Ser Ala Arg Asp Ser Ala Asn Leu Glu
      20      25      30
Ser Leu Ala Lys Leu Gly Ile Arg Tyr Ile Leu Asn Val Thr Pro Asn
      35      40      45
Leu Pro Asn Phe Phe Glu Lys Asn Gly Asp Phe His Tyr Lys Gln Ile
      50      55      60
Pro Ile Ser Asp His Trp Ser Gln Asn Leu Ser Arg Phe Phe Pro Glu
65      70      75      80
Ala Ile Glu Phe Ile Asp Glu Ala Leu Ser Gln Asn Cys Gly Val Leu
      85      90      95
Val His Cys Leu Ala Gly Val Ser Arg Ser Val Thr Val Thr Val Ala
      100      105      110
Tyr Leu Met Gln Lys Leu His Leu Ser Leu Asn Asp Ala Tyr Asp Leu

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		115					120				125								
Val	Lys	Arg	Lys	Lys	Ser	Asn	Ile	Ser	Pro	Asn	Phe	Asn	Phe	Met	Gly				
	130					135					140								
Gln	Leu	Leu	Asp	Phe	Glu	Arg	Ser	Leu	Arg	Leu	Glu								
145					150					155									

<210> 6
 <211> 155
 <212> PRT
 <213> Homo sapiens

<400> 6																			
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1				5					10					15					
Leu	Pro	His	Leu	Tyr	Leu	Gly	Ser	Gln	Lys	Asp	Val	Leu	Asn	Lys	Asp				
		20						25					30						
Leu	Met	Thr	Gln	Asn	Gly	Ile	Ser	Tyr	Val	Leu	Asn	Ala	Ser	Asn	Ser				
		35					40					45							
Cys	Pro	Lys	Pro	Asp	Phe	Ile	Cys	Glu	Ser	Arg	Phe	Met	Arg	Val	Pro				
	50					55					60								
Ile	Asn	Asp	Asn	Tyr	Cys	Glu	Lys	Leu	Leu	Pro	Trp	Leu	Asp	Lys	Ser				
65					70					75				80					
Ile	Glu	Phe	Ile	Asp	Lys	Ala	Lys	Leu	Ser	Ser	Cys	Gln	Val	Ile	Val				
			85					90						95					
His	Cys	Leu	Ala	Gly	Ile	Ser	Arg	Ser	Ala	Thr	Ile	Ala	Ile	Ala	Tyr				
		100						105					110						
Ile	Met	Lys	Thr	Met	Gly	Met	Ser	Ser	Asp	Asp	Ala	Tyr	Arg	Phe	Val				
		115					120					125							
Lys	Asp	Arg	Arg	Pro	Ser	Ile	Ser	Pro	Asn	Phe	Asn	Phe	Leu	Gly	Gln				
	130					135					140								
Leu	Leu	Glu	Tyr	Glu	Arg	Thr	Leu	Lys	Leu	Leu									
145					150					155									

<210> 7
 <211> 154
 <212> PRT
 <213> Homo sapiens

<400> 7																			
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Leu	Pro	Tyr	Leu	Tyr	Leu	Gly	Ser	Cys	Asn	His	Ser	Ser	Asp	Leu	Gln				
		20						25					30						
Gly	Leu	Gln	Ala	Cys	Gly	Ile	Thr	Ala	Val	Leu	Asn	Val	Ser	Ala	Ser				
		35					40					45							
Cys	Pro	Asn	His	Phe	Glu	Gly	Leu	Phe	His	Tyr	Lys	Ser	Ile	Pro	Val				
	50					55					60								
Glu	Asp	Asn	Gln	Met	Val	Glu	Ile	Ser	Ala	Trp	Phe	Gln	Glu	Ala	Ile				
65					70					75				80					
Ser	Phe	Ile	Asp	Ser	Val	Lys	Asn	Ser	Gly	Gly	Arg	Val	Leu	Val	His				
			85					90					95						
Cys	Gln	Ala	Gly	Ile	Ser	Arg	Ser	Ala	Thr	Ile	Cys	Leu	Ala	Tyr	Leu				
		100						105					110						
Ile	Gln	Ser	His	Arg	Val	Arg	Leu	Asp	Glu	Ala	Phe	Asp	Phe	Val	Lys				
		115					120						125						

Gln Arg Arg Gly Val Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu
 130 135 140
 Leu Gln Leu Glu Thr Gln Val Leu Cys His
 145 150

<210> 8
 <211> 154
 <212> PRT
 <213> Homo sapiens

<400> 8
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 Leu Pro Phe Leu Tyr Leu Gly Ser Ala Tyr His Ala Ser Arg Lys Asp
 20 25 30
 Met Leu Asp Ala Leu Gly Ile Thr Ala Leu Ile Asn Val Ser Ala Asn
 35 40 45
 Cys Pro Asn His Phe Glu Gly His Tyr Gln Tyr Lys Ser Ile Pro Val
 50 55 60
 Glu Asp Asn His Lys Ala Asp Ile Ser Ser Trp Phe Asn Glu Ala Ile
 65 70 75 80
 Asp Phe Ile Asp Ser Ile Lys Asn Ala Gly Gly Arg Val Phe Val His
 85 90 95
 Cys Gln Ala Gly Ile Ser Arg Ser Ala Thr Ile Cys Leu Ala Tyr Leu
 100 105 110
 Met Arg Thr Asn Arg Val Lys Leu Asp Glu Ala Phe Glu Phe Val Lys
 115 120 125
 Gln Arg Arg Ser Ile Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu
 130 135 140
 Leu Gln Phe Glu Ser Gln Val Leu Ala Pro
 145 150

<210> 9
 <211> 154
 <212> PRT
 <213> Homo sapiens

<400> 9
 Ser Ser Cys Gly Thr Pro Leu His Asp Gln Gly Gly Pro Val Glu Ile
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 Leu Pro Phe Leu Tyr Leu Gly Ser Ala Tyr His Ala Ala Arg Arg Asp
 20 25 30
 Met Leu Asp Ala Leu Gly Ile Thr Ala Leu Leu Asn Val Ser Ser Asp
 35 40 45
 Cys Pro Asn His Phe Glu Gly His Tyr Gln Tyr Lys Cys Ile Pro Val
 50 55 60
 Glu Asp Asn His Lys Ala Asp Ile Ser Ser Trp Phe Met Glu Ala Ile
 65 70 75 80
 Glu Tyr Ile Asp Ala Val Lys Asp Cys Arg Gly Arg Val Leu Val His
 85 90 95
 Cys Gln Ala Gly Ile Ser Arg Ser Ala Thr Ile Cys Leu Ala Tyr Leu
 100 105 110
 Met Met Lys Lys Arg Val Arg Leu Glu Glu Ala Phe Glu Phe Val Lys
 115 120 125
 Gln Arg Arg Ser Ile Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu

130 135 140
 Leu Gln Phe Glu Ser Gln Val Leu Ala Thr
 145 150

<210> 10
 <211> 154
 <212> PRT
 <213> Homo sapiens

<400> 10
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 1 5 10 15
 Leu Pro Phe Leu Tyr Leu Gly Ser Ala Tyr His Ala Ser Lys Cys Glu
 20 25 30
 Phe Leu Ala Asn Leu His Ile Thr Ala Leu Leu Asn Val Ser Arg Arg
 35 40 45
 Thr Ser Glu Ala Cys Met Thr His Leu His Tyr Lys Trp Ile Pro Val
 50 55 60
 Glu Asp Ser His Thr Ala Asp Ile Ser Ser His Phe Gln Glu Ala Ile
 65 70 75 80
 Asp Phe Ile Asp Cys Val Arg Glu Lys Gly Gly Lys Val Leu Val His
 85 90 95
 Cys Glu Ala Gly Ile Ser Arg Ser Pro Thr Ile Cys Met Ala Tyr Leu
 100 105 110
 Met Lys Thr Lys Gln Phe Arg Leu Lys Glu Ala Phe Asp Tyr Ile Lys
 115 120 125
 Gln Arg Arg Ser Met Val Ser Pro Asn Phe Gly Phe Met Gly Gln Leu
 130 135 140
 Leu Gln Tyr Glu Ser Glu Ile Leu Pro Ser
 145 150

<210> 11
 <211> 163
 <212> PRT
 <213> Homo sapiens

<400> 11
 Asp Gly Ser Gly Cys Tyr Ser Leu Pro Ser Gln Pro Cys Asn Glu Val
 1 5 10 15
 Thr Pro Arg Ile Tyr Val Gly Asn Ala Ser Val Ala Gln Asp Ile Pro
 20 25 30
 Lys Leu Gln Lys Leu Gly Ile Thr His Val Leu Asn Ala Ala Glu Gly
 35 40 45
 Arg Ser Phe Met His Val Asn Thr Asn Ala Asn Phe Tyr Lys Asp Ser
 50 55 60
 Gly Ile Thr Tyr Leu Gly Ile Lys Ala Asn Asp Thr Gln Glu Phe Asn
 65 70 75 80
 Leu Ser Ala Tyr Phe Glu Arg Ala Ala Asp Phe Ile Asp Gln Ala Leu
 85 90 95
 Ala Gln Lys Asn Gly Arg Val Leu Val His Cys Arg Glu Gly Tyr Ser
 100 105 110
 Arg Ser Pro Thr Leu Val Ile Ala Tyr Leu Met Met Arg Gln Lys Met
 115 120 125
 Asp Val Lys Ser Ala Leu Ser Ile Val Arg Gln Asn Arg Glu Ile Gly
 130 135 140

Pro Asn Asp Gly Phe Leu Ala Gln Leu Cys Gln Leu Asn Asp Arg Leu
 145 150 155 160
 Ala Lys Glu

<210> 12
 <211> 140
 <212> PRT
 <213> Homo sapiens

<400> 12
 Met Glu Gly Thr Met Met Met Gln Gln Arg Pro Val Leu Ser Gln Gln
 1 5 10 15
 His Pro Ser Phe Ile Leu Asn Ser Ser Pro Ala His Ser Pro Met Ala
 20 25 30
 Arg Glu Ile Asp Asn Phe Tyr Pro Glu Arg Phe Thr Tyr His Asn Val
 35 40 45
 Arg Leu Trp Asp Glu Glu Ser Ala Gln Leu Leu Pro His Trp Lys Glu
 50 55 60
 Thr His Arg Phe Ile Glu Ala Ala Arg Ala Gln Gly Thr His Val Leu
 65 70 75 80
 Val His Cys Lys Met Gly Val Ser Arg Ser Ala Ala Thr Val Leu Ala
 85 90 95
 Tyr Ala Met Lys Gln Tyr Glu Cys Ser Leu Glu Gln Ala Leu Arg His
 100 105 110
 Val Gln Glu Leu Arg Pro Ile Ala Arg Pro Asn Pro Gly Phe Leu Arg
 115 120 125
 Gln Leu Gln Ile Tyr Gln Gly Ile Leu Thr Ala Arg
 130 135 140

<210> 13
 <211> 737
 <212> PRT
 <213> Drosophila melanogaster

<400> 13
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 Thr Gln Ser Asn Asn Ser Asp Ile Gln Leu His Leu Gln Ser Met Phe
 20 25 30
 Tyr Leu Leu Gln Arg Glu Asp Thr Leu Lys Met Ala Val Lys Leu Glu
 35 40 45
 Ser Gln Arg Ser Asn Arg Thr Arg Tyr Leu Val Ile Ala Ser Arg Ser
 50 55 60
 Cys Cys Arg Ser Gly Thr Ser Asp Arg Arg Arg His Arg Ile Met Arg
 65 70 75 80
 His His Ser Val Lys Val Gly Gly Ser Ala Gly Thr Lys Ser Ser Thr
 85 90 95
 Ser Pro Ala Val Pro Thr Gln Arg Gln Leu Ser Val Glu Gln Thr Ala
 100 105 110
 Thr Glu Ala Ser Ser Lys Cys Asp Lys Thr Ala Asp Lys Glu Asn Ala
 115 120 125
 Thr Ala Ala Gly Asp Asn Lys Asn Thr Ser Gly Met Glu Glu Ser Cys
 130 135 140
 Leu Leu Gly Ile Asp Cys Asn Glu Arg Thr Thr Ile Gly Leu Val Val

145					150					155				160
Pro	Ile	Leu	Ala	Asp	Thr	Thr	Ile	His	Leu	Asp	Gly	Asp	Gly	Gly Phe
				165					170					175
Ser	Val	Lys	Val	Tyr	Glu	Lys	Thr	His	Ile	Phe	Lys	Pro	Val	Ser Val
			180					185					190	
Gln	Ala	Met	Trp	Ser	Ala	Leu	Gln	Thr	Leu	His	Lys	Val	Ser	Lys Lys
		195					200					205		
Ala	Arg	Glu	Asn	Asn	Phe	Tyr	Ala	Ser	Gly	Pro	Ser	His	Asp	Trp Leu
	210					215					220			
Ser	Ser	Tyr	Glu	Arg	Arg	Ile	Glu	Ser	Asp	Gln	Ser	Cys	Leu	Asn Glu
225					230					235				240
Trp	Asn	Ala	Met	Asp	Ala	Leu	Glu	Ser	Arg	Arg	Pro	Pro	Ser	Pro Asp
				245					250					255
Ala	Ile	Arg	Asn	Lys	Pro	Pro	Glu	Lys	Glu	Glu	Thr	Glu	Ser	Val Ile
			260					265					270	
Lys	Met	Lys	Leu	Lys	Ala	Ile	Met	Met	Ser	Val	Asp	Leu	Asp	Glu Val
	275						280					285		
Thr	Ser	Lys	Tyr	Ile	Arg	Gly	Arg	Leu	Glu	Glu	Ile	Leu	Asp	Met Asp
	290					295					300			
Leu	Gly	Glu	Tyr	Lys	Ser	Phe	Ile	Asp	Ala	Glu	Met	Leu	Val	Ile Leu
305					310					315				320
Gly	Gln	Met	Asp	Ala	Pro	Thr	Lys	Ile	Phe	Glu	His	Val	Tyr	Leu Gly
			325						330					335
Ser	Glu	Trp	Asn	Ala	Ser	Asn	Leu	Glu	Glu	Leu	Gln	Lys	Asn	Gly Val
			340					345					350	
Arg	His	Ile	Leu	Asn	Val	Thr	Arg	Glu	Ile	Asp	Asn	Phe	Phe	Pro Gly
	355						360					365		
Thr	Phe	Glu	Tyr	Phe	Asn	Val	Arg	Val	Tyr	Asp	Asp	Glu	Lys	Thr Asn
	370					375					380			
Leu	Leu	Lys	Tyr	Trp	Asp	Asp	Thr	Phe	Arg	Tyr	Ile	Thr	Arg	Ala Lys
385					390					395				400
Ala	Glu	Gly	Ser	Lys	Val	Leu	Val	His	Cys	Lys	Met	Gly	Val	Ser Arg
				405					410					415
Ser	Ala	Ser	Val	Val	Ile	Ala	Tyr	Ala	Met	Lys	Ala	Tyr	Gln	Trp Glu
			420					425					430	
Phe	Gln	Gln	Ala	Leu	Glu	His	Val	Lys	Lys	Arg	Arg	Ser	Cys	Ile Lys
	435						440					445		
Pro	Asn	Lys	Asn	Phe	Leu	Asn	Gln	Leu	Glu	Thr	Tyr	Ser	Gly	Met Leu
	450					455					460			
Asp	Ala	Met	Lys	Asn	Lys	Glu	Lys	Leu	Gln	Arg	Ser	Lys	Ser	Glu Thr
465					470					475				480
Asn	Leu	Lys	Ser	Thr	Lys	Asp	Ala	Arg	Leu	Leu	Pro	Gly	Ser	Glu Pro
				485					490					495
Thr	Pro	Leu	Ile	Gln	Ala	Leu	Asn	Gln	Ala	Lys	Ser	Lys	Ser	Thr Gly
			500					505					510	
Glu	Ala	Gly	Val	Thr	Pro	Asp	Gly	Glu	Glu	Glu	Asp	Gly	Ser	Arg Met
	515						520					525		
His	Arg	Arg	Ser	Ile	Ala	Gln	Lys	Ser	Gln	Arg	Arg	Met	Val	Arg Arg
	530					535					540			
Ser	Ser	Ser	Thr	Ser	Pro	Lys	Thr	Gln	Thr	Ala	Val	Val	Thr	Lys Gln
545					550					555				560
Gln	Ser	Gln	Ser	Met	Glu	Asn	Leu	Thr	Pro	Glu	Arg	Ser	Val	Ala Glu
				565					570					575
Glu	Pro	Lys	Asn	Met	Arg	Phe	Pro	Gly	Ser	Asn	Gly	Glu	Asn	Tyr Ser
			580					585					590	
Val	Thr	Gln	Asn	Gln	Val	Leu	His	Ile	Gln	Lys	His	Thr	Pro	Leu Ser
			595				600							605

Val Arg Thr Arg Ile His Asp Leu Glu Ala His Arg Ala Asp Gln Leu
 610 615 620
 Pro Gln Gln Pro Val Trp Thr Ser Leu Thr Lys Leu Ile Thr Gln Thr
 625 630 635 640
 Ser His Leu Gly Lys Ser Val Ser Gly Ser Ser Ser Gly Asn Ile Asp
 645 650 655
 Ser Arg Arg Asp Ser Ser Cys Ser Asp Val Phe Ser Ser Gln Val Asp
 660 665 670
 Ser Val Phe Ala Lys Asp Glu Gly Glu Lys Arg Gln Arg Arg Lys Thr
 675 680 685
 His Ser Trp Thr Glu Ser Leu Gly Pro Ser Gly Gly Ile Val Leu Asp
 690 695 700
 Pro Thr Pro Gln Gln Gln Lys Gln Gln Ser Asn Ala Ile Leu Arg Pro
 705 710 715 720
 Arg Gly Thr Arg Gln Arg Glu Leu Pro Ser Arg His Ala Ser Trp Gly
 725 730 735
 Ser

<210> 14
 <211> 509
 <212> PRT
 <213> Homo sapiens

<400> 14
 Met Thr Leu Ser Thr Leu Ala Arg Lys Arg Lys Ala Pro Leu Ala Cys
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 Thr Cys Ser Leu Gly Gly Pro Asp Met Ile Pro Tyr Phe Ser Ala Asn
 20 25 30
 Ala Val Ile Ser Gln Asn Ala Ile Asn Gln Leu Ile Ser Glu Ser Phe
 35 40 45
 Leu Thr Val Lys Gly Ala Ala Leu Phe Leu Pro Arg Gly Asn Gly Ser
 50 55 60
 Ser Thr Pro Arg Ile Ser His Arg Arg Asn Lys His Ala Gly Asp Leu
 65 70 75 80
 Gln Gln His Leu Gln Ala Met Phe Ile Leu Leu Arg Pro Glu Asp Asn
 85 90 95
 Ile Arg Leu Ala Val Arg Leu Glu Ser Thr Tyr Gln Asn Arg Thr Arg
 100 105 110
 Tyr Met Val Val Val Ser Thr Asn Gly Arg Gln Asp Thr Glu Glu Ser
 115 120 125
 Ile Val Leu Gly Met Asp Phe Ser Ser Asn Asp Ser Ser Thr Cys Thr
 130 135 140
 Met Gly Leu Val Leu Pro Leu Trp Ser Asp Thr Leu Ile His Leu Asp
 145 150 155 160
 Gly Asp Gly Gly Phe Ser Val Ser Thr Asp Asn Arg Val His Ile Phe
 165 170 175
 Lys Pro Val Ser Val Gln Ala Met Trp Ser Ala Leu Gln Ser Leu His
 180 185 190
 Lys Ala Cys Glu Val Ala Arg Ala His Asn Tyr Tyr Pro Gly Ser Leu
 195 200 205
 Phe Leu Thr Trp Val Ser Tyr Tyr Glu Ser His Ile Asn Ser Asp Gln
 210 215 220
 Ser Ser Val Asn Glu Trp Asn Ala Met Gln Asp Val Gln Ser His Arg
 225 230 235 240
 Pro Asp Ser Pro Ala Leu Phe Thr Asp Ile Pro Thr Glu Arg Glu Arg

				245					250					255			
Thr	Glu	Arg	Leu	Ile	Lys	Thr	Lys	Leu	Arg	Glu	Ile	Met	Met	Gln	Lys		
			260					265					270				
Asp	Leu	Glu	Asn	Ile	Thr	Ser	Lys	Glu	Ile	Arg	Thr	Glu	Leu	Glu	Met		
		275					280					285					
Gln	Met	Val	Cys	Asn	Leu	Arg	Glu	Phe	Lys	Glu	Phe	Ile	Asp	Asn	Glu		
	290					295				300							
Met	Ile	Val	Ile	Leu	Gly	Gln	Met	Asp	Ser	Pro	Thr	Gln	Ile	Phe	Glu		
305				310				315						320			
His	Val	Phe	Leu	Gly	Ser	Glu	Trp	Asn	Ala	Ser	Asn	Leu	Glu	Asp	Leu		
			325					330						335			
Gln	Asn	Arg	Gly	Val	Arg	Tyr	Ile	Leu	Asn	Val	Thr	Arg	Glu	Ile	Asp		
			340					345					350				
Asn	Phe	Phe	Pro	Gly	Val	Phe	Glu	Tyr	His	Asn	Ile	Arg	Val	Tyr	Asp		
		355					360					365					
Glu	Glu	Ala	Thr	Asp	Leu	Leu	Ala	Tyr	Trp	Asn	Asp	Thr	Tyr	Lys	Phe		
	370				375						380						
Ile	Ser	Lys	Ala	Lys	Lys	His	Gly	Ser	Lys	Cys	Leu	Val	His	Cys	Lys		
385				390						395				400			
Met	Gly	Val	Ser	Arg	Ser	Ala	Ser	Thr	Val	Ile	Ala	Tyr	Ala	Met	Lys		
			405					410						415			
Glu	Tyr	Gly	Trp	Asn	Leu	Asp	Arg	Ala	Tyr	Asp	Tyr	Val	Lys	Glu	Arg		
		420					425						430				
Arg	Thr	Val	Thr	Lys	Pro	Asn	Pro	Ser	Phe	Met	Arg	Gln	Leu	Glu	Glu		
	435					440						445					
Tyr	Gln	Gly	Ile	Leu	Leu	Ala	Ser	Phe	Leu	Gly	Leu	Ile	His	Gly	Gly		
	450				455					460							
Arg	Asp	Lys	Pro	Trp	Gly	Glu	Lys	Ser	Thr	Glu	Phe	Glu	Ser	Val	Asp		
465				470					475					480			
Leu	Val	Ser	Ile	Pro	Gly	Ser	Pro	Ser	Cys	Cys	Asn	Pro	Glu	Lys	Leu		
			485					490						495			
Leu	His	Ile	Ser	His	Pro	Tyr	Leu	Thr	Pro	Ser	Ile	Lys					
		500						505									

<210> 15
 <211> 552
 <212> PRT
 <213> Homo sapiens

<400> 15
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 Gly Gly Phe Ser Val Ser Thr Ala Gly Arg Met His Ile Phe Lys Pro
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 Val Ser Val Gln Ala Met Trp Ser Ala Leu Gln Val Leu His Lys Ala
 35 40 45
 Cys Glu Val Ala Arg Arg His Asn Tyr Phe Pro Gly Gly Val Ala Leu
 50 55 60
 Ile Trp Ala Thr Tyr Tyr Glu Ser Cys Ile Ser Ser Glu Gln Ser Cys
 65 70 75 80
 Ile Asn Glu Trp Asn Ala Met Gln Asp Leu Glu Ser Thr Arg Pro Asp
 85 90 95
 Ser Pro Ala Leu Phe Val Asp Lys Pro Thr Glu Gly Glu Arg Thr Glu
 100 105 110
 Arg Leu Ile Lys Ala Lys Leu Arg Ser Ile Met Met Ser Gln Asp Leu
 115 120 125

Glu	Asn	Val	Thr	Ser	Lys	Glu	Ile	Arg	Asn	Glu	Leu	Glu	Lys	Gln	Met
130						135					140				
Asn	Cys	Asn	Leu	Lys	Glu	Leu	Lys	Glu	Phe	Ile	Asp	Asn	Glu	Met	Leu
145					150					155					160
Leu	Ile	Leu	Gly	Gln	Met	Asp	Lys	Pro	Ser	Leu	Ile	Phe	Asp	His	Leu
				165					170					175	
Tyr	Leu	Gly	Ser	Glu	Trp	Asn	Ala	Ser	Asn	Leu	Glu	Glu	Leu	Gln	Gly
			180					185					190		
Ser	Gly	Val	Asp	Tyr	Ile	Leu	Asn	Val	Thr	Arg	Glu	Ile	Asp	Asn	Phe
		195					200					205			
Phe	Pro	Gly	Leu	Phe	Ala	Tyr	His	Asn	Ile	Arg	Val	Tyr	Asp	Glu	Glu
	210					215					220				
Thr	Thr	Asp	Leu	Leu	Ala	His	Trp	Asn	Glu	Ala	Tyr	His	Phe	Ile	Asn
225					230					235					240
Lys	Ala	Lys	Arg	Asn	His	Ser	Lys	Cys	Leu	Val	His	Cys	Lys	Met	Gly
				245					250					255	
Val	Ser	Arg	Ser	Ala	Ser	Thr	Val	Ile	Ala	Tyr	Ala	Met	Lys	Glu	Phe
			260					265					270		
Gly	Trp	Pro	Leu	Glu	Lys	Ala	Tyr	Asn	Tyr	Val	Lys	Gln	Lys	Arg	Ser
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Ile	Thr	Arg	Pro	Asn	Ala	Gly	Phe	Met	Arg	Gln	Leu	Ser	Glu	Tyr	Glu
	290					295					300				
Gly	Ile	Leu	Asp	Ala	Ser	Lys	Gln	Arg	His	Asn	Lys	Leu	Trp	Arg	Gln
305					310					315					320
Gln	Thr	Asp	Ser	Ser	Leu	Gln	Gln	Pro	Val	Asp	Asp	Pro	Ala	Gly	Pro
				325					330					335	
Gly	Asp	Phe	Leu	Pro	Glu	Thr	Pro	Asp	Gly	Thr	Pro	Glu	Ser	Gln	Leu
			340					345					350		
Pro	Phe	Leu	Asp	Asp	Ala	Ala	Gln	Pro	Gly	Leu	Gly	Pro	Pro	Leu	Pro
		355					360					365			
Cys	Cys	Phe	Arg	Arg	Leu	Ser	Asp	Pro	Leu	Leu	Pro	Ser	Pro	Glu	Asp
	370					375					380				
Glu	Thr	Gly	Ser	Leu	Val	His	Leu	Glu	Asp	Pro	Glu	Arg	Glu	Ala	Leu
385					390					395					400
Leu	Glu	Glu	Ala	Ala	Pro	Pro	Ala	Glu	Val	His	Arg	Pro	Ala	Arg	Gln
				405					410					415	
Pro	Gln	Gln	Gly	Ser	Gly	Leu	Cys	Glu	Lys	Asp	Val	Lys	Lys	Lys	Leu
			420					425				430			
Glu	Phe	Gly	Ser	Pro	Lys	Gly	Arg	Ser	Gly	Ser	Leu	Leu	Gln	Val	Glu
		435					440					445			
Glu	Thr	Glu	Arg	Glu	Glu	Gly	Leu	Gly	Ala	Gly	Arg	Trp	Gly	Gln	Leu
	450					455					460				
Pro	Thr	Gln	Leu	Asp	Gln	Asn	Leu	Leu	Asn	Ser	Glu	Asn	Leu	Asn	Asn
465					470					475					480
Asn	Ser	Lys	Arg	Ser	Cys	Pro	Asn	Gly	Met	Glu	Val	Gly	Arg	Ala	Arg
				485					490					495	
Pro	Ala	Gly	Trp	His	Thr	Pro	Ser	Leu	Pro	Ser	His	Ser	Asn	Trp	Pro
			500					505					510		
Thr	Ser	Ala	Ser	Val	Val	Gly	Thr	Thr	Gly	Thr	Arg	His	His	Thr	Gln
		515					520					525			
Leu	Ile	Phe	Phe	Tyr	Cys	Leu	Leu	Trp	Ala	Pro	Ser	Ser	His	Leu	Gln
	530					535					540				
Gly	Pro	Glu	Gly	Ser	Phe	Thr	Gly								
545					550										

<211> 10
 <212> PRT
 <213> Homo sapiens

<400> 16
 Val His Cys Lys Met Gly Val Ser Arg Ser
 1 5 10

<210> 17
 <211> 24
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Conserved homology region from eight DSPs having
 MAP-kinase phosphatase activity

<400> 17
 Asn Gly Arg Val Leu Val His Cys Gln Ala Gly Ile Ser Arg Ser Gly
 1 5 10 15
 Thr Asn Ile Leu Ala Tyr Leu Met
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<210> 18
 <211> 22
 <212> PRT
 <213> Homo sapiens

<400> 18
 Val Leu Val His Cys Lys Met Gly Val Ser Arg Ser Ala Ala Thr Val
 1 5 10 15
 Leu Ala Tyr Ala Met Lys
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<210> 19
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 19
 tgtcgatgaa gtcacggtac tgctggaggg 30

<210> 20
 <211> 1416
 <212> DNA
 <213> Mus musculus

<400> 20
 atggccctgg tcacagtgg ccgttcgccc ccgggcagcg gcgcctccac gcccgtaggg 60
 ccctgggacc aggcggtcca gcgaaggagt cgactccagc gaaggcagag ctttgcggtg 120
 ctccgtgggg ctgtcctggg actgcaggat ggaggggaca atgatgatgc agcagaggcc 180

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cagatctacc agggcatcct gacggccaga acctga 1416

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<210> 21
<211> 471
<212> PRT
<213> Mus musculus

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<400> 21
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Thr Pro Val Gly Pro Trp Asp Gln Ala Val Gln Arg Arg Ser Arg Leu
          20          25          30
Gln Arg Arg Gln Ser Phe Ala Val Leu Arg Gly Ala Val Leu Gly Leu
          35          40          45
Gln Asp Gly Gly Asp Asn Asp Asp Ala Ala Glu Ala Ser Ser Glu Pro
          50          55          60
Thr Glu Lys Ala Pro Ser Glu Glu Glu Leu His Gly Asp Gln Thr Asp
          65          70          75          80
Phe Gly Gln Gly Ser Gln Ser Pro Gln Lys Gln Glu Glu Gln Arg Gln
          85          90          95
His Leu His Leu Met Val Gln Leu Leu Arg Pro Gln Asp Asp Ile Arg
          100          105          110
Leu Ala Ala Gln Leu Glu Ala Pro Arg Pro Pro Arg Leu Arg Tyr Leu
          115          120          125
Leu Val Val Ser Thr Arg Glu Gly Glu Gly Leu Ser Gln Asp Glu Thr
          130          135          140
Val Leu Leu Gly Val Asp Phe Pro Asp Ser Ser Ser Pro Ser Cys Thr
          145          150          155          160
Leu Gly Leu Val Leu Pro Leu Trp Ser Asp Thr Gln Val Tyr Leu Asp
          165          170          175
Gly Asp Gly Gly Phe Ser Val Thr Ser Gly Gly Gln Ser Arg Ile Phe
          180          185          190
Lys Pro Ile Ser Ile Gln Thr Met Trp Ala Thr Leu Gln Val Leu His
          195          200          205
Gln Ala Cys Glu Ala Ala Leu Gly Ser Gly Leu Val Pro Gly Gly Ser
          210          215          220
Ala Leu Thr Trp Ala Ser His Tyr Gln Glu Arg Leu Asn Ser Glu Gln

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225		230		235		240									
Ser	Cys	Leu	Asn	Glu	Trp	Thr	Ala	Met	Ala	Asp	Leu	Glu	Ser	Leu	Arg
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Pro	Pro	Ser	Ala	Glu	Pro	Gly	Gly	Ser	Ser	Glu	Gln	Glu	Gln	Met	Glu
			260					265						270	
Gln	Ala	Ile	Arg	Ala	Glu	Leu	Trp	Lys	Val	Leu	Asp	Val	Ser	Asp	Leu
		275					280				285				
Glu	Ser	Val	Thr	Ser	Lys	Glu	Ile	Arg	Gln	Ala	Leu	Glu	Leu	Arg	Leu
		290				295					300				
Gly	Leu	Pro	Leu	Gln	Gln	Tyr	Arg	Asp	Phe	Ile	Asp	Asn	Gln	Met	Leu
305					310					315					320
Leu	Leu	Val	Ala	Gln	Arg	Asp	Arg	Ala	Ser	Arg	Ile	Phe	Pro	His	Leu
			325						330					335	
Tyr	Leu	Gly	Ser	Glu	Trp	Asn	Ala	Ala	Asn	Leu	Glu	Glu	Leu	Gln	Arg
			340				345						350		
Asn	Arg	Val	Thr	His	Ile	Leu	Asn	Met	Ala	Arg	Glu	Ile	Asp	Asn	Phe
		355					360					365			
Tyr	Pro	Glu	Arg	Phe	Thr	Tyr	His	Asn	Val	Arg	Leu	Trp	Asp	Glu	Glu
		370				375					380				
Ser	Ala	Gln	Leu	Leu	Pro	His	Trp	Lys	Glu	Thr	His	Arg	Phe	Ile	Glu
385					390					395					400
Ala	Ala	Arg	Ala	Gln	Gly	Thr	His	Val	Leu	Val	His	Cys	Lys	Met	Gly
			405						410					415	
Val	Ser	Arg	Ser	Ala	Ala	Thr	Val	Leu	Ala	Tyr	Ala	Met	Lys	Gln	Tyr
			420					425					430		
Glu	Cys	Ser	Leu	Glu	Gln	Ala	Leu	Arg	His	Val	Gln	Glu	Leu	Arg	Pro
		435				440					445				
Ile	Ala	Arg	Pro	Asn	Pro	Gly	Phe	Leu	Arg	Gln	Leu	Gln	Ile	Tyr	Gln
		450				455					460				
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<210> 22
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 22
 gccgcactgg aaggagacgc accg

24

<210> 23
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 23
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27

<210> 24
 <211> 28

<212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 24
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<210> 25
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 25
 cgagagact ccaggtcggc catagcc 27

<210> 26
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 26
 ggggttgagg gaaggggccc tgc 23

<210> 27
 <211> 6
 <212> PRT
 <213> Homo sapiens

<400> 27
 Asp Ala Asp Glu Tyr Leu
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<210> 28
 <211> 2718
 <212> DNA
 <213> Homo sapiens

<400> 28
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 gagtcgactc cagcgaaggc agagctttgc ggtgctccgt ggggctgtcc tgggactgca 180
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